

Before The  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

Comments  
on Behalf of  
**COHEN, DIPPELL AND EVERIST, P.C.**

CDE reviewed internal a prior file developed several years ago that scrutinized on a preliminary basis the allocation situation of the distribution of UHF Channels 31 through 51.

<u>Nielsen Market Rank</u>	<u>City/State</u>	<u>Station Channel Affected from Channel 31-51</u>
1	New York, NY	31, 33, 44
2	Los Angeles, CA	31, 34,36,41,42, 43
3	Chicago, IL	31,43,45,47

<u>Nielsen Market Rank</u>	<u>City/State</u>	<u>Station Channel Affected from Channel 31-51</u>
4	Philadelphia, PA	32,34,35,42
5	Dallas, TX	32,35,36,39,40,45
6	San Jose, CA	36,49,
6	San Francisco, CA	33,38,39,45,51,
6	San Jose, CA	41,50
7	Boston, MA	31,32,39,42,43
8-9	Atlanta, GA	39,41,43
9-8	Washington, DC	32,33,35,36,48,50
10	Houston, TX	35,38,44,

Distribution of UHF Channels 31-51 Across the United States

<u>MHz</u>	<u>Channel</u>	<u>Continental U.S.</u>		
		<u>No. In Top 50 Full-Service Major Markets</u>	<u>No. In Top 50 Class A Major Markets</u>	
24				
	51	16	0	
	50	16	0	
	49	23	0	
	48	18	24	
96	47	18	22	
	46	18	27	
	45	21	5	
	44	20	26	

		<u>Continental U.S.</u>		
<u>MHz</u>	<u>Channel</u>	<u>No. In Top 50 Full-Service Major Markets</u>	<u>No. In Top 50 Class A Major Markets</u>	
	43	21	29	
	42	22	29	
	41	21	32	
	40	23	31	
	39	27	36	
	38	26	34	
	37	None Reserved for Radio Astronomy		
	36	25	29	
	35	20	30	
	34	28	34	
	33	20	26	
	32	24	31	
	31	20	34	

The above tables demonstrate the significant challenge in the relocation of DTV stations in the top ten markets as well as across the continental United States.

It is anticipated that the FCC will require a replication program for the anticipated dislocated TV stations. In the Petition for Reconsideration in MB Docket No. 87-268<sup>1</sup> dated

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<sup>1</sup>In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MB Docket No. 87-268, *Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and Eighth Report and Order*, Adopted: March 3, 2008 Released: March 6, 2008.

April 21, 2008, the following was submitted for FCC's consideration.

Prior Replication Program Imperfection

CDE submitted comments questioning the FCC's methodology used to determine a station's service replication for the purposes of determining final allotted DTV facilities in response to the Seventh Further Notice of Proposed Rulemaking<sup>2</sup>. In response to CDE's comments,<sup>3</sup> the FCC addressed the question of its service replication methodology in its Seventh Report and Order and Eighth Further Notice of Proposed Rulemaking,<sup>4</sup> where the FCC did not agree with the CDE's findings. Later, the FCC determined that its service replication methodology was not as it had indicated, but in fact was more similar to what CDE had initially questioned, however the "DTV Power" description which includes a description of the FCC's service replication methodology in Appendix B of the MO&O was not been modified to accurately reflect the FCC's actual service replication methodology. Therefore, CDE wishes to alert the FCC to consider this imperfection if a similar approach to Appendix B is made in the spectrum reallocation so to correctly indicate the FCC's service replication methodology. So to complete the record, a detailed discussion follows.

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<sup>2</sup>"In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service", MB Docket 87-268, Seventh Further Notice of Proposed Rulemaking (FCC 06-150) Released October 20, 2006.

<sup>3</sup>See comments of Cohen, Dippell and Everist filed January 26, 2007.

<sup>4</sup>"In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service", MB Docket 87-268, Seventh Report and Order and Eighth Further Notice of Proposed Rulemaking (FCC 07-138) Released August 6, 2007.

The attached Excel spreadsheet (Appendix A) contains all of the relevant data for the example. The effective height for each can be confirmed using the same 3-second terrain data as is used in all the FCC's Longley-Rice programs. The distance-to-contour calculations can be verified using the same routines that exist separately or within the FCC Longley-Rice software.<sup>5</sup>

Table II "Ch 5 - 8 radials" contains the same data columns for the DTV replication channel. However, note that the effective height (HAAT) for the eight cardinal radials (0,45, 90, 135, 180, 225, 270, 315) matches the previous tab, but the effective heights for radials in between these eight cardinal radials are linearly interpolated, as opposed to each radial being individually determined by the terrain data.

Table III "Ch 5 - 360 radials" shows the replicated DTV contour with the effective height for all 360 radials calculated individually from terrain data.

Table IV shows the eight cardinal radial method for the NTSC Channel 2 Grade B contour.

Table V "ERP and Patterns" shows the effect when the contour-matching ERP from the previous tabs is normalized into a relative field value directional antenna pattern. The last pair of columns in the ERP and Patterns tab are the value taken from the proposed final table.

The only way to match the final table values is to use the method where the effective heights are interpolated between the eight cardinal radials (second pair of columns on this tab).

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<sup>5</sup>If there is still skepticism on the part of the FCC, its encouraged to manually confirm at least one span of 11 radials (i.e., 0,1,2...10 degrees).

CDE urges the FCC to manually confirm this instead of relying upon what it thinks the code is doing.

The final attachment shows where the 8 vs 360 variable is specified in the source code. As there is no public access to the FCC's "front-end" code, it is unknown how the values are inputted.

OET Bulletin 69

CDE seeks clarification of the OET Bulletin 69 program as described by the report, "Longley-Rice Methodology for Evaluating TV Coverage and Interference" dated February 6, 2004. The "Spectrum Act of 2012"<sup>6</sup> specified the program OET Bulletin 69. However, in the interim since February 6, 2004, there have been modifications to the program. Is the program code<sup>7</sup> that will be used, the program described in February 6, 2004 or the program code as of the date of the enactment of the Spectrum Act of 2012?

Further, CDE requests that any and all software source code be available in advance of any action by the FCC in pursuit of reallocating DTV broadcast stations to another channel.

Charles W. Rhodes' Presentation  
AFCCE Meeting on March 16, 2005

Attached as Appendix B is the Power Point presentation by Charles W. Rhodes to the March 16, 2005 AFCCE Meeting. The presentation, in a PowerPoint format, describes a

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<sup>6</sup>Title VI of the Middle Class Tax Relief and Job Creation Act of 2012

<sup>7</sup>CDE has modified the FCC's FORTRAN-77 code only to extend necessary (primarily input/output handling) for the program to run on a Window XP platform

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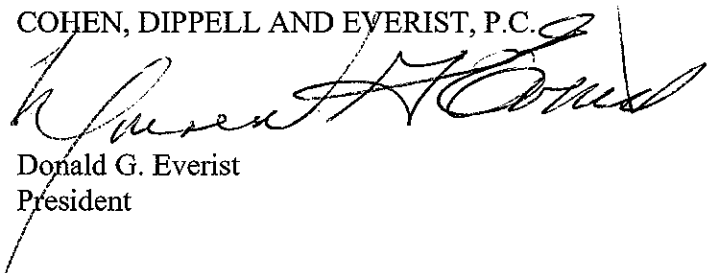
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possible interference situation. While it is unknown whether or not this interference situation actually occurs sufficient to cause possible wireless users difficulty in the anticipated spectrum auction, the interference situation may be more prevalent if significant repacking of the TV band occurs. The further point we wish to make is it may be premature to set the guard band width due to this potential interference situation.

Respectfully Submitted,

COHEN, DIPPELL AND EVERIST, P.C.

A handwritten signature in black ink, appearing to read "Donald G. Everist", is written over the printed name and title.

Donald G. Everist  
President

DATE: January 25, 2013

Cohen, Dippell and Everist, P.C.

## APPENDIX A

### PRIOR REPLICATION PROGRAM IMPERFECTION

TABLE I

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2 AZ	Service TV ERP	HAAT	HAAT Radials 360	
			Field	Distance
0	100	455	47	116.3
1	100	455	47	116.4
2	100	457	47	116.5
3	100	458	47	116.6
4	100	460	47	116.8
5	100	462	47	117
6	100	466	47	117.3
7	100	469	47	117.6
8	100	470	47	117.7
9	100	470	47	117.7
10	100	470	47	117.7
11	100	469	47	117.6
12	100	469	47	117.6
13	100	469	47	117.6
14	100	467	47	117.4
15	100	465	47	117.2
16	100	462	47	117
17	100	460	47	116.8
18	100	459	47	116.7
19	100	457	47	116.5
20	100	456	47	116.4
21	100	454	47	116.2
22	100	451	47	116
23	100	448	47	115.7
24	100	445	47	115.4
25	100	442	47	115.1
26	100	440	47	115
27	100	440	47	115
28	100	440	47	115
29	100	442	47	115.1
30	100	444	47	115.3
31	100	444	47	115.3
32	100	445	47	115.4
33	100	445	47	115.4
34	100	446	47	115.5
35	100	447	47	115.6
36	100	448	47	115.7
37	100	448	47	115.7
38	100	447	47	115.6
39	100	444	47	115.3
40	100	440	47	114.9
41	100	437	47	114.7
42	100	437	47	114.6
43	100	435	47	114.5
44	100	432	47	114.2
45	100	430	47	114.1
46	100	430	47	114.1
47	100	429	47	114
48	100	426	47	113.7

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Channel 2	Service TV	HAAT	HAAT Radials 360	
AZ	ERP		Field	Distance
49	100	424	47	113.5
50	100	422	47	113.3
51	100	420	47	113.1
52	100	417	47	112.9
53	100	415	47	112.7
54	100	413	47	112.5
55	100	412	47	112.4
56	100	408	47	112.1
57	100	406	47	111.9
58	100	404	47	111.7
59	100	403	47	111.7
60	100	399	47	111.3
61	100	394	47	110.9
62	100	394	47	110.9
63	100	392	47	110.7
64	100	390	47	110.5
65	100	391	47	110.6
66	100	390	47	110.5
67	100	385	47	110.1
68	100	376	47	109.3
69	100	370	47	108.8
70	100	369	47	108.7
71	100	370	47	108.8
72	100	372	47	108.9
73	100	372	47	109
74	100	376	47	109.3
75	100	375	47	109.2
76	100	375	47	109.2
77	100	377	47	109.4
78	100	381	47	109.7
79	100	384	47	110
80	100	387	47	110.2
81	100	384	47	110
82	100	384	47	110
83	100	388	47	110.3
84	100	393	47	110.7
85	100	400	47	111.3
86	100	404	47	111.7
87	100	408	47	112.1
88	100	413	47	112.5
89	100	417	47	112.9
90	100	421	47	113.2
91	100	425	47	113.6
92	100	429	47	113.9
93	100	431	47	114.1
94	100	432	47	114.2
95	100	432	47	114.2
96	100	431	47	114.1
97	100	431	47	114.1

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Channel 2	Service TV	HAAT Radials 360		
AZ	ERP	HAAT	Field	Distance
98	100	431	47	114.2
99	100	433	47	114.3
100	100	436	47	114.6
101	100	439	47	114.9
102	100	442	47	115.2
103	100	446	47	115.5
104	100	449	47	115.8
105	100	452	47	116
106	100	452	47	116
107	100	452	47	116
108	100	451	47	115.9
109	100	450	47	115.9
110	100	449	47	115.7
111	100	447	47	115.6
112	100	445	47	115.4
113	100	445	47	115.4
114	100	446	47	115.5
115	100	444	47	115.4
116	100	443	47	115.2
117	100	440	47	115
118	100	438	47	114.7
119	100	435	47	114.5
120	100	433	47	114.3
121	100	431	47	114.1
122	100	426	47	113.7
123	100	422	47	113.4
124	100	420	47	113.2
125	100	419	47	113
126	100	418	47	113
127	100	418	47	113
128	100	416	47	112.8
129	100	416	47	112.8
130	100	414	47	112.7
131	100	413	47	112.5
132	100	416	47	112.8
133	100	417	47	112.9
134	100	420	47	113.2
135	100	420	47	113.2
136	100	420	47	113.2
137	100	419	47	113.1
138	100	415	47	112.7
139	100	410	47	112.3
140	100	409	47	112.1
141	100	407	47	112
142	100	402	47	111.6
143	100	400	47	111.3
144	100	401	47	111.5
145	100	401	47	111.4
146	100	398	47	111.2

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Channel 2	Service TV	HAAT Radials 360		
AZ	ERP	HAAT	Field	Distance
147	100	397	47	111.1
148	100	396	47	111.1
149	100	393	47	110.8
150	100	390	47	110.5
151	100	390	47	110.5
152	100	388	47	110.3
153	100	386	47	110.1
154	100	385	47	110.1
155	100	385	47	110.1
156	100	383	47	109.9
157	100	387	47	110.2
158	100	393	47	110.7
159	100	393	47	110.8
160	100	393	47	110.8
161	100	391	47	110.6
162	100	388	47	110.3
163	100	389	47	110.4
164	100	391	47	110.6
165	100	395	47	110.9
166	100	397	47	111.1
167	100	400	47	111.4
168	100	403	47	111.6
169	100	403	47	111.7
170	100	400	47	111.4
171	100	396	47	111
172	100	393	47	110.8
173	100	394	47	110.9
174	100	393	47	110.8
175	100	395	47	110.9
176	100	397	47	111.1
177	100	395	47	110.9
178	100	392	47	110.7
179	100	388	47	110.3
180	100	385	47	110.1
181	100	385	47	110.1
182	100	389	47	110.4
183	100	394	47	110.8
184	100	398	47	111.2
185	100	401	47	111.4
186	100	400	47	111.4
187	100	400	47	111.4
188	100	399	47	111.3
189	100	396	47	111
190	100	387	47	110.2
191	100	383	47	109.9
192	100	377	47	109.4
193	100	373	47	109
194	100	374	47	109.1
195	100	375	47	109.2

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Channel 2	Service TV		HAAT Radials 360	
AZ	ERP	HAAT	Field	Distance
196	100	376	47	109.3
197	100	380	47	109.6
198	100	382	47	109.8
199	100	382	47	109.8
200	100	386	47	110.2
201	100	389	47	110.5
202	100	393	47	110.7
203	100	392	47	110.7
204	100	395	47	111
205	100	399	47	111.3
206	100	404	47	111.7
207	100	406	47	111.9
208	100	404	47	111.7
209	100	402	47	111.5
210	100	399	47	111.3
211	100	399	47	111.3
212	100	402	47	111.6
213	100	406	47	111.9
214	100	407	47	112
215	100	407	47	112
216	100	405	47	111.8
217	100	404	47	111.7
218	100	402	47	111.5
219	100	397	47	111.1
220	100	395	47	111
221	100	394	47	110.8
222	100	392	47	110.7
223	100	390	47	110.5
224	100	387	47	110.2
225	100	385	47	110
226	100	381	47	109.7
227	100	381	47	109.7
228	100	380	47	109.7
229	100	382	47	109.8
230	100	382	47	109.8
231	100	381	47	109.8
232	100	386	47	110.2
233	100	388	47	110.3
234	100	383	47	109.9
235	100	382	47	109.8
236	100	380	47	109.7
237	100	381	47	109.7
238	100	382	47	109.8
239	100	383	47	109.9
240	100	384	47	110
241	100	387	47	110.2
242	100	385	47	110.1
243	100	379	47	109.6
244	100	376	47	109.3

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Channel 2	Service TV	HAAT Radials 360		
AZ	ERP	HAAT	Field	Distance
245	100	373	47	109.1
246	100	370	47	108.8
247	100	367	47	108.5
248	100	363	47	108.3
249	100	363	47	108.3
250	100	358	47	107.9
251	100	354	47	107.6
252	100	348	47	107.2
253	100	345	47	106.9
254	100	340	47	106.6
255	100	334	47	106.1
256	100	328	47	105.7
257	100	330	47	105.8
258	100	331	47	105.9
259	100	334	47	106.2
260	100	336	47	106.3
261	100	339	47	106.5
262	100	341	47	106.7
263	100	343	47	106.8
264	100	344	47	106.9
265	100	344	47	106.9
266	100	346	47	107
267	100	348	47	107.1
268	100	350	47	107.3
269	100	351	47	107.3
270	100	353	47	107.5
271	100	355	47	107.6
272	100	356	47	107.7
273	100	356	47	107.8
274	100	359	47	108
275	100	363	47	108.3
276	100	367	47	108.6
277	100	371	47	108.9
278	100	372	47	109
279	100	374	47	109.2
280	100	378	47	109.5
281	100	382	47	109.8
282	100	383	47	109.9
283	100	383	47	109.9
284	100	384	47	110
285	100	385	47	110
286	100	385	47	110
287	100	385	47	110.1
288	100	386	47	110.1
289	100	388	47	110.3
290	100	390	47	110.5
291	100	392	47	110.6
292	100	391	47	110.6
293	100	391	47	110.6

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Channel 2	Service TV		HAAT Radials 360	
AZ	ERP	HAAT	Field	Distance
294	100	392	47	110.7
295	100	394	47	110.8
296	100	396	47	111
297	100	398	47	111.2
298	100	402	47	111.5
299	100	405	47	111.8
300	100	408	47	112.1
301	100	410	47	112.3
302	100	413	47	112.5
303	100	415	47	112.7
304	100	417	47	112.9
305	100	419	47	113
306	100	420	47	113.2
307	100	422	47	113.3
308	100	423	47	113.4
309	100	424	47	113.5
310	100	425	47	113.6
311	100	427	47	113.8
312	100	428	47	113.9
313	100	429	47	113.9
314	100	429	47	114
315	100	430	47	114.1
316	100	431	47	114.2
317	100	433	47	114.3
318	100	434	47	114.4
319	100	434	47	114.4
320	100	433	47	114.3
321	100	432	47	114.2
322	100	432	47	114.2
323	100	433	47	114.3
324	100	433	47	114.3
325	100	433	47	114.3
326	100	433	47	114.3
327	100	434	47	114.4
328	100	434	47	114.5
329	100	435	47	114.5
330	100	436	47	114.6
331	100	437	47	114.7
332	100	439	47	114.9
333	100	440	47	115
334	100	441	47	115.1
335	100	442	47	115.1
336	100	442	47	115.1
337	100	442	47	115.1
338	100	442	47	115.2
339	100	443	47	115.2
340	100	444	47	115.3
341	100	445	47	115.4
342	100	447	47	115.6

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Channel 2 AZ	Service TV ERP	HAAT	HAAT Radials 360	
			Field	Distance
343	100	449	47	115.7
344	100	450	47	115.8
345	100	450	47	115.9
346	100	450	47	115.9
347	100	451	47	115.9
348	100	451	47	115.9
349	100	450	47	115.9
350	100	449	47	115.8
351	100	448	47	115.7
352	100	447	47	115.6
353	100	448	47	115.7
354	100	450	47	115.8
355	100	450	47	115.9
356	100	451	47	116
357	100	452	47	116
358	100	452	47	116.1
359	100	454	47	116.2

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT		HAAT Radials 8	
AZ	ERP	HAAT	Field	Distance
0	10.239	455	17.9	116.3
1	10.233	454	17.9	116.3
2	10.227	454	17.9	116.2
3	10.221	453	17.9	116.2
4	10.216	453	17.9	116.1
5	10.21	452	17.9	116.1
6	10.204	452	17.9	116
7	10.198	451	17.9	116
8	10.193	451	17.9	115.9
9	10.187	450	17.9	115.9
10	10.181	449	17.9	115.8
11	10.176	449	17.9	115.8
12	10.17	448	17.9	115.7
13	10.164	448	17.9	115.7
14	10.158	447	17.9	115.6
15	10.152	447	17.9	115.6
16	10.146	446	17.9	115.5
17	10.141	446	17.9	115.5
18	10.135	445	17.9	115.4
19	10.129	445	17.9	115.4
20	10.123	444	17.9	115.3
21	10.117	443	17.9	115.3
22	10.111	443	18	115.2
23	10.105	442	18	115.2
24	10.099	442	18	115.1
25	10.093	441	18	115.1
26	10.087	441	18	115
27	10.081	440	18	115
28	10.075	440	18	114.9
29	10.069	439	18	114.9
30	10.063	439	18	114.8
31	10.057	438	18	114.8
32	10.05	437	18	114.7
33	10.044	437	18	114.7
34	10.038	436	18	114.6
35	10.031	436	18	114.6
36	10.025	435	18	114.5
37	10.018	435	18	114.5
38	10.012	434	18	114.4
39	10.006	434	18	114.4
40	9.999	433	18	114.3
41	9.993	433	18	114.3
42	9.986	432	18	114.2
43	9.98	431	18	114.2
44	9.973	431	18	114.1
45	9.966	430	18	114.1
46	9.963	430	18	114.1
47	9.961	430	18	114
48	9.958	430	18	114

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT		HAAT Radials 8	
AZ	ERP	HAAT	Field	Distance
49	9.955	430	18	114
50	9.953	429	18	114
51	9.95	429	18	114
52	9.947	429	18	113.9
53	9.945	429	18	113.9
54	9.942	428	18	113.9
55	9.939	428	18	113.9
56	9.937	428	18	113.9
57	9.934	428	18	113.8
58	9.931	428	18	113.8
59	9.928	427	18	113.8
60	9.926	427	18	113.8
61	9.923	427	18	113.8
62	9.92	427	18	113.8
63	9.917	426	18	113.7
64	9.914	426	18	113.7
65	9.912	426	18	113.7
66	9.909	426	18	113.7
67	9.906	426	18	113.7
68	9.903	425	18	113.6
69	9.9	425	18	113.6
70	9.898	425	18	113.6
71	9.895	425	18	113.6
72	9.892	425	18	113.6
73	9.889	424	18	113.5
74	9.886	424	18	113.5
75	9.883	424	18.1	113.5
76	9.88	424	18.1	113.5
77	9.877	423	18.1	113.5
78	9.875	423	18.1	113.4
79	9.872	423	18.1	113.4
80	9.869	423	18.1	113.4
81	9.866	423	18.1	113.4
82	9.863	422	18.1	113.4
83	9.86	422	18.1	113.3
84	9.857	422	18.1	113.3
85	9.854	422	18.1	113.3
86	9.851	421	18.1	113.3
87	9.848	421	18.1	113.3
88	9.846	421	18.1	113.2
89	9.843	421	18.1	113.2
90	9.84	421	18.1	113.2
91	9.84	421	18.1	113.2
92	9.84	421	18.1	113.2
93	9.84	421	18.1	113.2
94	9.839	421	18.1	113.2
95	9.839	421	18.1	113.2
96	9.839	421	18.1	113.2
97	9.839	421	18.1	113.2

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
98	9.839	421	18.1	113.2
99	9.839	421	18.1	113.2
100	9.839	421	18.1	113.2
101	9.839	421	18.1	113.2
102	9.839	421	18.1	113.2
103	9.839	421	18.1	113.2
104	9.839	421	18.1	113.2
105	9.839	421	18.1	113.2
106	9.839	421	18.1	113.2
107	9.839	421	18.1	113.2
108	9.839	421	18.1	113.2
109	9.839	421	18.1	113.2
110	9.839	421	18.1	113.2
111	9.839	421	18.1	113.2
112	9.839	421	18.1	113.2
113	9.839	421	18.1	113.2
114	9.839	421	18.1	113.2
115	9.839	421	18.1	113.2
116	9.839	421	18.1	113.2
117	9.839	421	18.1	113.2
118	9.839	421	18.1	113.2
119	9.839	421	18.1	113.2
120	9.839	421	18.1	113.2
121	9.839	421	18.1	113.2
122	9.838	421	18.1	113.2
123	9.838	421	18.1	113.2
124	9.838	421	18.1	113.2
125	9.838	421	18.1	113.2
126	9.838	421	18.1	113.2
127	9.838	421	18.1	113.2
128	9.838	421	18.1	113.2
129	9.838	421	18.1	113.2
130	9.838	421	18.1	113.2
131	9.838	421	18.1	113.2
132	9.838	421	18.1	113.2
133	9.838	420	18.1	113.2
134	9.838	420	18.1	113.2
135	9.838	420	18.1	113.2
136	9.827	420	18.1	113.1
137	9.816	419	18.1	113.1
138	9.805	418	18.1	113
139	9.795	417	18.1	112.9
140	9.784	417	18.1	112.8
141	9.773	416	18.1	112.8
142	9.761	415	18.1	112.7
143	9.75	414	18.1	112.6
144	9.738	413	18.1	112.6
145	9.727	413	18.1	112.5
146	9.715	412	18.1	112.4

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
147	9.704	411	18.1	112.4
148	9.692	410	18.1	112.3
149	9.68	410	18.1	112.2
150	9.668	409	18.1	112.2
151	9.656	408	18.2	112.1
152	9.643	407	18.2	112
153	9.631	406	18.2	111.9
154	9.619	406	18.2	111.9
155	9.606	405	18.2	111.8
156	9.594	404	18.2	111.7
157	9.581	403	18.2	111.7
158	9.568	403	18.2	111.6
159	9.555	402	18.2	111.5
160	9.542	401	18.2	111.5
161	9.529	400	18.2	111.4
162	9.516	399	18.2	111.3
163	9.503	399	18.2	111.3
164	9.489	398	18.2	111.2
165	9.476	397	18.2	111.1
166	9.462	396	18.2	111.1
167	9.449	396	18.2	111
168	9.435	395	18.3	110.9
169	9.421	394	18.3	110.9
170	9.408	393	18.3	110.8
171	9.394	392	18.3	110.7
172	9.38	392	18.3	110.6
173	9.366	391	18.3	110.6
174	9.351	390	18.3	110.5
175	9.337	389	18.3	110.4
176	9.323	389	18.3	110.4
177	9.309	388	18.3	110.3
178	9.295	387	18.3	110.2
179	9.28	386	18.3	110.2
180	9.266	385	18.3	110.1
181	9.265	385	18.3	110.1
182	9.265	385	18.3	110.1
183	9.265	385	18.3	110.1
184	9.264	385	18.3	110.1
185	9.264	385	18.3	110.1
186	9.263	385	18.3	110.1
187	9.263	385	18.3	110.1
188	9.263	385	18.3	110.1
189	9.262	385	18.3	110.1
190	9.262	385	18.3	110.1
191	9.262	385	18.3	110.1
192	9.261	385	18.3	110.1
193	9.261	385	18.3	110.1
194	9.26	385	18.3	110.1
195	9.26	385	18.3	110.1

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
196	9.26	385	18.3	110.1
197	9.259	385	18.3	110.1
198	9.259	385	18.3	110.1
199	9.258	385	18.3	110.1
200	9.258	385	18.3	110.1
201	9.258	385	18.3	110.1
202	9.257	385	18.3	110.1
203	9.257	385	18.3	110.1
204	9.257	385	18.3	110.1
205	9.256	385	18.3	110.1
206	9.256	385	18.3	110.1
207	9.255	385	18.3	110.1
208	9.255	385	18.3	110.1
209	9.255	385	18.3	110.1
210	9.254	385	18.3	110.1
211	9.254	385	18.3	110.1
212	9.253	385	18.3	110.1
213	9.253	385	18.3	110
214	9.253	385	18.3	110
215	9.252	385	18.3	110
216	9.252	385	18.3	110
217	9.252	385	18.3	110
218	9.251	385	18.3	110
219	9.251	385	18.3	110
220	9.25	385	18.3	110
221	9.25	385	18.3	110
222	9.25	385	18.3	110
223	9.249	385	18.3	110
224	9.249	385	18.3	110
225	9.248	385	18.3	110
226	9.235	384	18.3	110
227	9.222	383	18.4	109.9
228	9.209	382	18.4	109.8
229	9.195	382	18.4	109.8
230	9.182	381	18.4	109.7
231	9.168	380	18.4	109.7
232	9.154	380	18.4	109.6
233	9.138	379	18.4	109.5
234	9.122	378	18.4	109.5
235	9.106	377	18.4	109.4
236	9.089	377	18.4	109.4
237	9.071	376	18.4	109.3
238	9.052	375	18.4	109.2
239	9.033	375	18.4	109.2
240	9.014	374	18.5	109.1
241	8.993	373	18.5	109.1
242	8.973	373	18.5	109
243	8.951	372	18.5	109
244	8.93	371	18.5	108.9

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
245	8.908	370	18.5	108.8
246	8.885	370	18.5	108.8
247	8.862	369	18.5	108.7
248	8.839	368	18.5	108.7
249	8.815	368	18.5	108.6
250	8.791	367	18.6	108.6
251	8.767	366	18.6	108.5
252	8.742	365	18.6	108.4
253	8.717	365	18.6	108.4
254	8.692	364	18.6	108.3
255	8.667	363	18.6	108.3
256	8.641	363	18.6	108.2
257	8.615	362	18.6	108.2
258	8.589	361	18.7	108.1
259	8.562	361	18.7	108.1
260	8.536	360	18.7	108
261	8.509	359	18.7	108
262	8.483	358	18.7	107.9
263	8.456	358	18.7	107.9
264	8.429	357	18.7	107.8
265	8.402	356	18.8	107.7
266	8.375	356	18.8	107.7
267	8.348	355	18.8	107.6
268	8.321	354	18.8	107.6
269	8.294	353	18.8	107.5
270	8.267	353	18.8	107.5
271	8.333	354	18.8	107.6
272	8.399	356	18.8	107.7
273	8.464	358	18.7	107.9
274	8.529	360	18.7	108
275	8.593	361	18.7	108.1
276	8.657	363	18.6	108.3
277	8.718	365	18.6	108.4
278	8.779	367	18.6	108.5
279	8.837	368	18.5	108.7
280	8.893	370	18.5	108.8
281	8.947	372	18.5	108.9
282	8.998	373	18.5	109.1
283	9.046	375	18.4	109.2
284	9.09	377	18.4	109.4
285	9.131	379	18.4	109.5
286	9.168	380	18.4	109.7
287	9.201	382	18.4	109.8
288	9.233	384	18.3	110
289	9.265	385	18.3	110.1
290	9.297	387	18.3	110.3
291	9.329	389	18.3	110.4
292	9.36	391	18.3	110.6
293	9.392	392	18.3	110.7

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT		HAAT Radials 8	
AZ	ERP	HAAT	Field	Distance
294	9.422	394	18.3	110.9
295	9.452	396	18.2	111
296	9.482	398	18.2	111.2
297	9.512	399	18.2	111.3
298	9.541	401	18.2	111.5
299	9.57	403	18.2	111.6
300	9.598	404	18.2	111.8
301	9.626	406	18.2	111.9
302	9.653	408	18.2	112.1
303	9.68	410	18.1	112.2
304	9.706	411	18.1	112.4
305	9.732	413	18.1	112.5
306	9.757	415	18.1	112.7
307	9.782	416	18.1	112.8
308	9.806	418	18.1	113
309	9.83	420	18.1	113.1
310	9.854	422	18.1	113.3
311	9.877	423	18.1	113.5
312	9.899	425	18	113.6
313	9.922	427	18	113.8
314	9.943	429	18	113.9
315	9.965	430	18	114.1
316	9.971	431	18	114.1
317	9.978	431	18	114.2
318	9.985	432	18	114.2
319	9.991	432	18	114.3
320	9.998	433	18	114.3
321	10.005	434	18	114.4
322	10.011	434	18	114.4
323	10.017	435	18	114.5
324	10.024	435	18	114.5
325	10.03	436	18	114.6
326	10.037	436	18	114.6
327	10.043	437	18	114.7
328	10.049	437	18	114.7
329	10.056	438	18	114.8
330	10.062	438	18	114.8
331	10.068	439	18	114.9
332	10.074	440	18	114.9
333	10.08	440	18	115
334	10.086	441	18	115
335	10.092	441	18	115.1
336	10.098	442	18	115.1
337	10.105	442	18	115.2
338	10.111	443	18	115.2
339	10.117	443	17.9	115.3
340	10.123	444	17.9	115.3
341	10.128	445	17.9	115.4
342	10.134	445	17.9	115.4

TABLE II

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT	HAAT Radials 8		
		HAAT	Field	Distance
AZ	ERP			
343	10.14	446	17.9	115.5
344	10.146	446	17.9	115.5
345	10.152	447	17.9	115.6
346	10.158	447	17.9	115.6
347	10.164	448	17.9	115.7
348	10.17	448	17.9	115.7
349	10.175	449	17.9	115.8
350	10.181	449	17.9	115.8
351	10.187	450	17.9	115.9
352	10.193	451	17.9	115.9
353	10.198	451	17.9	116
354	10.204	452	17.9	116
355	10.21	452	17.9	116.1
356	10.216	453	17.9	116.1
357	10.221	453	17.9	116.2
358	10.227	454	17.9	116.2
359	10.233	454	17.9	116.3

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5 AZ	Service DT ERP	HAAT	HAAT Radials 360	
			Field	Distance
0	10.239	455	17.9	116.3
1	10.244	455	17.9	116.4
2	10.255	457	17.9	116.5
3	10.273	458	17.9	116.6
4	10.297	460	17.9	116.8
5	10.317	462	17.9	117
6	10.354	466	17.8	117.3
7	10.383	469	17.8	117.6
8	10.397	470	17.8	117.7
9	10.397	470	17.8	117.7
10	10.393	470	17.8	117.7
11	10.39	469	17.8	117.6
12	10.39	469	17.8	117.6
13	10.385	469	17.8	117.6
14	10.366	467	17.8	117.4
15	10.345	465	17.9	117.2
16	10.317	462	17.9	117
17	10.296	460	17.9	116.8
18	10.279	459	17.9	116.7
19	10.258	457	17.9	116.5
20	10.246	456	17.9	116.4
21	10.228	454	17.9	116.2
22	10.199	451	17.9	116
23	10.165	448	17.9	115.7
24	10.129	445	17.9	115.4
25	10.097	442	18	115.1
26	10.079	440	18	115
27	10.079	440	18	115
28	10.081	440	18	115
29	10.1	442	18	115.1
30	10.117	444	17.9	115.3
31	10.125	444	17.9	115.3
32	10.132	445	17.9	115.4
33	10.137	445	17.9	115.4
34	10.146	446	17.9	115.5
35	10.157	447	17.9	115.6
36	10.165	448	17.9	115.7
37	10.17	448	17.9	115.7
38	10.154	447	17.9	115.6
39	10.118	444	17.9	115.3
40	10.075	440	18	114.9
41	10.049	437	18	114.7
42	10.041	437	18	114.6
43	10.021	435	18	114.5
44	9.984	432	18	114.2
45	9.966	430	18	114.1
46	9.962	430	18	114.1
47	9.951	429	18	114
48	9.909	426	18	113.7

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5 AZ	Service DT ERP	HAAT	HAAT Radials 360	
			Field	Distance
49	9.888	424	18	113.5
50	9.859	422	18.1	113.3
51	9.827	420	18.1	113.1
52	9.785	417	18.1	112.9
53	9.756	415	18.1	112.7
54	9.732	413	18.1	112.5
55	9.709	412	18.1	112.4
56	9.657	408	18.2	112.1
57	9.621	406	18.2	111.9
58	9.591	404	18.2	111.7
59	9.579	403	18.2	111.7
60	9.51	399	18.2	111.3
61	9.427	394	18.3	110.9
62	9.429	394	18.3	110.9
63	9.391	392	18.3	110.7
64	9.356	390	18.3	110.5
65	9.363	391	18.3	110.6
66	9.357	390	18.3	110.5
67	9.255	385	18.3	110.1
68	9.075	376	18.4	109.3
69	8.893	370	18.5	108.8
70	8.848	369	18.5	108.7
71	8.906	370	18.5	108.8
72	8.948	372	18.5	108.9
73	8.951	372	18.5	109
74	9.073	376	18.4	109.3
75	9.046	375	18.4	109.2
76	9.036	375	18.4	109.2
77	9.092	377	18.4	109.4
78	9.186	381	18.4	109.7
79	9.239	384	18.3	110
80	9.285	387	18.3	110.2
81	9.241	384	18.3	110
82	9.239	384	18.3	110
83	9.31	388	18.3	110.3
84	9.398	393	18.3	110.7
85	9.517	400	18.2	111.3
86	9.587	404	18.2	111.7
87	9.662	408	18.1	112.1
88	9.734	413	18.1	112.5
89	9.793	417	18.1	112.9
90	9.84	421	18.1	113.2
91	9.898	425	18	113.6
92	9.943	429	18	113.9
93	9.968	431	18	114.1
94	9.985	432	18	114.2
95	9.987	432	18	114.2
96	9.973	431	18	114.1
97	9.975	431	18	114.1

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5 AZ	Service DT ERP	HAAT	HAAT Radials 360	
			Field	Distance
98	9.976	431	18	114.2
99	9.997	433	18	114.3
100	10.032	436	18	114.6
101	10.069	439	18	114.9
102	10.105	442	18	115.2
103	10.144	446	17.9	115.5
104	10.181	449	17.9	115.8
105	10.206	452	17.9	116
106	10.208	452	17.9	116
107	10.205	452	17.9	116
108	10.195	451	17.9	115.9
109	10.19	450	17.9	115.9
110	10.172	449	17.9	115.7
111	10.154	447	17.9	115.6
112	10.138	445	17.9	115.4
113	10.139	445	17.9	115.4
114	10.139	446	17.9	115.5
115	10.128	444	17.9	115.4
116	10.109	443	18	115.2
117	10.082	440	18	115
118	10.053	438	18	114.7
119	10.016	435	18	114.5
120	9.993	433	18	114.3
121	9.974	431	18	114.1
122	9.914	426	18	113.7
123	9.864	422	18.1	113.4
124	9.834	420	18.1	113.2
125	9.811	419	18.1	113
126	9.805	418	18.1	113
127	9.807	418	18.1	113
128	9.775	416	18.1	112.8
129	9.778	416	18.1	112.8
130	9.753	414	18.1	112.7
131	9.735	413	18.1	112.5
132	9.77	416	18.1	112.8
133	9.796	417	18.1	112.9
134	9.838	420	18.1	113.2
135	9.838	420	18.1	113.2
136	9.834	420	18.1	113.2
137	9.82	419	18.1	113.1
138	9.759	415	18.1	112.7
139	9.69	410	18.1	112.3
140	9.666	409	18.1	112.1
141	9.646	407	18.2	112
142	9.565	402	18.2	111.6
143	9.519	400	18.2	111.3
144	9.543	401	18.2	111.5
145	9.535	401	18.2	111.4
146	9.494	398	18.2	111.2

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5 AZ	Service DT ERP	HAAT	HAAT Radials 360	
			Field	Distance
147	9.47	397	18.2	111.1
148	9.463	396	18.2	111.1
149	9.405	393	18.3	110.8
150	9.35	390	18.3	110.5
151	9.342	390	18.3	110.5
152	9.312	388	18.3	110.3
153	9.273	386	18.3	110.1
154	9.265	385	18.3	110.1
155	9.256	385	18.3	110.1
156	9.217	383	18.4	109.9
157	9.292	387	18.3	110.2
158	9.397	393	18.3	110.7
159	9.411	393	18.3	110.8
160	9.407	393	18.3	110.8
161	9.367	391	18.3	110.6
162	9.315	388	18.3	110.3
163	9.33	389	18.3	110.4
164	9.374	391	18.3	110.6
165	9.438	395	18.3	110.9
166	9.473	397	18.2	111.1
167	9.521	400	18.2	111.4
168	9.573	403	18.2	111.6
169	9.582	403	18.2	111.7
170	9.521	400	18.2	111.4
171	9.449	396	18.2	111
172	9.41	393	18.3	110.8
173	9.424	394	18.3	110.9
174	9.407	393	18.3	110.8
175	9.434	395	18.3	110.9
176	9.469	397	18.2	111.1
177	9.439	395	18.3	110.9
178	9.388	392	18.3	110.7
179	9.309	388	18.3	110.3
180	9.266	385	18.3	110.1
181	9.264	385	18.3	110.1
182	9.332	389	18.3	110.4
183	9.413	394	18.3	110.8
184	9.492	398	18.2	111.2
185	9.533	401	18.2	111.4
186	9.527	400	18.2	111.4
187	9.529	400	18.2	111.4
188	9.514	399	18.2	111.3
189	9.46	396	18.2	111
190	9.288	387	18.3	110.2
191	9.223	383	18.4	109.9
192	9.098	377	18.4	109.4
193	8.974	373	18.5	109
194	9.004	374	18.5	109.1
195	9.049	375	18.4	109.2

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5 AZ	Service DT ERP	HAAT	HAAT Radials 360	
			Field	Distance
196	9.061	376	18.4	109.3
197	9.163	380	18.4	109.6
198	9.193	382	18.4	109.8
199	9.194	382	18.4	109.8
200	9.277	386	18.3	110.2
201	9.34	389	18.3	110.5
202	9.398	393	18.3	110.7
203	9.392	392	18.3	110.7
204	9.443	395	18.2	111
205	9.51	399	18.2	111.3
206	9.595	404	18.2	111.7
207	9.622	406	18.2	111.9
208	9.592	404	18.2	111.7
209	9.55	402	18.2	111.5
210	9.502	399	18.2	111.3
211	9.511	399	18.2	111.3
212	9.564	402	18.2	111.6
213	9.626	406	18.2	111.9
214	9.641	407	18.2	112
215	9.642	407	18.2	112
216	9.612	405	18.2	111.8
217	9.591	404	18.2	111.7
218	9.557	402	18.2	111.5
219	9.47	397	18.2	111.1
220	9.442	395	18.2	111
221	9.414	394	18.3	110.8
222	9.394	392	18.3	110.7
223	9.349	390	18.3	110.5
224	9.294	387	18.3	110.2
225	9.248	385	18.3	110
226	9.185	381	18.4	109.7
227	9.18	381	18.4	109.7
228	9.171	380	18.4	109.7
229	9.205	382	18.4	109.8
230	9.195	382	18.4	109.8
231	9.189	381	18.4	109.8
232	9.277	386	18.3	110.2
233	9.314	388	18.3	110.3
234	9.228	383	18.3	109.9
235	9.203	382	18.4	109.8
236	9.166	380	18.4	109.7
237	9.174	381	18.4	109.7
238	9.192	382	18.4	109.8
239	9.212	383	18.4	109.9
240	9.246	384	18.3	110
241	9.293	387	18.3	110.2
242	9.254	385	18.3	110.1
243	9.145	379	18.4	109.6
244	9.063	376	18.4	109.3

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5 AZ	Service DT ERP	HAAT	HAAT Radials 360	
			Field	Distance
245	8.986	373	18.5	109.1
246	8.886	370	18.5	108.8
247	8.782	367	18.6	108.5
248	8.664	363	18.6	108.3
249	8.666	363	18.6	108.3
250	8.481	358	18.7	107.9
251	8.315	354	18.8	107.6
252	8.102	348	18.9	107.2
253	7.974	345	19	106.9
254	7.786	340	19.1	106.6
255	7.579	334	19.2	106.1
256	7.424	328	19.3	105.7
257	7.466	330	19.3	105.8
258	7.502	331	19.2	105.9
259	7.608	334	19.2	106.2
260	7.674	336	19.1	106.3
261	7.757	339	19.1	106.5
262	7.842	341	19.1	106.7
263	7.913	343	19	106.8
264	7.953	344	19	106.9
265	7.953	344	19	106.9
266	8.009	346	19	107
267	8.084	348	18.9	107.1
268	8.162	350	18.9	107.3
269	8.194	351	18.9	107.3
270	8.267	353	18.8	107.5
271	8.344	355	18.8	107.6
272	8.376	356	18.8	107.7
273	8.405	356	18.8	107.8
274	8.522	359	18.7	108
275	8.657	363	18.6	108.3
276	8.805	367	18.6	108.6
277	8.912	371	18.5	108.9
278	8.95	372	18.5	109
279	9.021	374	18.4	109.2
280	9.121	378	18.4	109.5
281	9.193	382	18.4	109.8
282	9.22	383	18.4	109.9
283	9.227	383	18.3	109.9
284	9.232	384	18.3	110
285	9.251	385	18.3	110
286	9.252	385	18.3	110
287	9.258	385	18.3	110.1
288	9.274	386	18.3	110.1
289	9.307	388	18.3	110.3
290	9.348	390	18.3	110.5
291	9.378	392	18.3	110.6
292	9.368	391	18.3	110.6
293	9.364	391	18.3	110.6

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5	Service DT		HAAT Radials 360	
AZ	ERP	HAAT	Field	Distance
294	9.384	392	18.3	110.7
295	9.415	394	18.3	110.8
296	9.448	396	18.2	111
297	9.492	398	18.2	111.2
298	9.55	402	18.2	111.5
299	9.603	405	18.2	111.8
300	9.651	408	18.2	112.1
301	9.693	410	18.1	112.3
302	9.73	413	18.1	112.5
303	9.761	415	18.1	112.7
304	9.788	417	18.1	112.9
305	9.811	419	18.1	113
306	9.831	420	18.1	113.2
307	9.852	422	18.1	113.3
308	9.872	423	18.1	113.4
309	9.883	424	18.1	113.5
310	9.904	425	18	113.6
311	9.926	427	18	113.8
312	9.938	428	18	113.9
313	9.946	429	18	113.9
314	9.953	429	18	114
315	9.965	430	18	114.1
316	9.979	431	18	114.2
317	9.997	433	18	114.3
318	10.007	434	18	114.4
319	10.008	434	18	114.4
320	9.999	433	18	114.3
321	9.985	432	18	114.2
322	9.983	432	18	114.2
323	9.994	433	18	114.3
324	9.999	433	18	114.3
325	9.999	433	18	114.3
326	10.001	433	18	114.3
327	10.009	434	18	114.4
328	10.015	434	18	114.5
329	10.025	435	18	114.5
330	10.037	436	18	114.6
331	10.05	437	18	114.7
332	10.067	439	18	114.9
333	10.079	440	18	115
334	10.091	441	18	115.1
335	10.097	442	18	115.1
336	10.1	442	18	115.1
337	10.1	442	18	115.1
338	10.105	442	18	115.2
339	10.113	443	18	115.2
340	10.122	444	17.9	115.3
341	10.138	445	17.9	115.4
342	10.156	447	17.9	115.6

TABLE III

COHEN, DIPPELL AND EVERIST, P.C.

Channel 5 AZ	Service DT ERP	HAAT	HAAT Radials 360	
			Field	Distance
343	10.172	449	17.9	115.7
344	10.183	450	17.9	115.8
345	10.19	450	17.9	115.9
346	10.189	450	17.9	115.9
347	10.192	451	17.9	115.9
348	10.193	451	17.9	115.9
349	10.189	450	17.9	115.9
350	10.179	449	17.9	115.8
351	10.164	448	17.9	115.7
352	10.16	447	17.9	115.6
353	10.171	448	17.9	115.7
354	10.183	450	17.9	115.8
355	10.191	450	17.9	115.9
356	10.201	451	17.9	116
357	10.205	452	17.9	116
358	10.21	452	17.9	116.1
359	10.227	454	17.9	116.2

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2 AZ	Service TV ERP	HAAT Radials 8		
		HAAT	Field	Distance
0	100	455	47	116.3
1	100	454	47	116.3
2	100	454	47	116.2
3	100	453	47	116.2
4	100	453	47	116.1
5	100	452	47	116.1
6	100	452	47	116
7	100	451	47	116
8	100	451	47	115.9
9	100	450	47	115.9
10	100	449	47	115.8
11	100	449	47	115.8
12	100	448	47	115.7
13	100	448	47	115.7
14	100	447	47	115.6
15	100	447	47	115.6
16	100	446	47	115.5
17	100	446	47	115.5
18	100	445	47	115.4
19	100	445	47	115.4
20	100	444	47	115.3
21	100	443	47	115.3
22	100	443	47	115.2
23	100	442	47	115.2
24	100	442	47	115.1
25	100	441	47	115.1
26	100	441	47	115
27	100	440	47	115
28	100	440	47	114.9
29	100	439	47	114.9
30	100	439	47	114.8
31	100	438	47	114.8
32	100	437	47	114.7
33	100	437	47	114.7
34	100	436	47	114.6
35	100	436	47	114.6
36	100	435	47	114.5
37	100	435	47	114.5
38	100	434	47	114.4
39	100	434	47	114.4
40	100	433	47	114.3
41	100	433	47	114.3
42	100	432	47	114.2
43	100	431	47	114.2
44	100	431	47	114.1
45	100	430	47	114.1
46	100	430	47	114.1
47	100	430	47	114
48	100	430	47	114

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2	Service TV	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
49	100	430	47	114
50	100	429	47	114
51	100	429	47	114
52	100	429	47	113.9
53	100	429	47	113.9
54	100	428	47	113.9
55	100	428	47	113.9
56	100	428	47	113.9
57	100	428	47	113.8
58	100	428	47	113.8
59	100	427	47	113.8
60	100	427	47	113.8
61	100	427	47	113.8
62	100	427	47	113.8
63	100	426	47	113.7
64	100	426	47	113.7
65	100	426	47	113.7
66	100	426	47	113.7
67	100	426	47	113.7
68	100	425	47	113.6
69	100	425	47	113.6
70	100	425	47	113.6
71	100	425	47	113.6
72	100	425	47	113.6
73	100	424	47	113.5
74	100	424	47	113.5
75	100	424	47	113.5
76	100	424	47	113.5
77	100	423	47	113.5
78	100	423	47	113.4
79	100	423	47	113.4
80	100	423	47	113.4
81	100	423	47	113.4
82	100	422	47	113.4
83	100	422	47	113.3
84	100	422	47	113.3
85	100	422	47	113.3
86	100	421	47	113.3
87	100	421	47	113.3
88	100	421	47	113.2
89	100	421	47	113.2
90	100	421	47	113.2
91	100	421	47	113.2
92	100	421	47	113.2
93	100	421	47	113.2
94	100	421	47	113.2
95	100	421	47	113.2
96	100	421	47	113.2
97	100	421	47	113.2

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2	Service TV	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
98	100	421	47	113.2
99	100	421	47	113.2
100	100	421	47	113.2
101	100	421	47	113.2
102	100	421	47	113.2
103	100	421	47	113.2
104	100	421	47	113.2
105	100	421	47	113.2
106	100	421	47	113.2
107	100	421	47	113.2
108	100	421	47	113.2
109	100	421	47	113.2
110	100	421	47	113.2
111	100	421	47	113.2
112	100	421	47	113.2
113	100	421	47	113.2
114	100	421	47	113.2
115	100	421	47	113.2
116	100	421	47	113.2
117	100	421	47	113.2
118	100	421	47	113.2
119	100	421	47	113.2
120	100	421	47	113.2
121	100	421	47	113.2
122	100	421	47	113.2
123	100	421	47	113.2
124	100	421	47	113.2
125	100	421	47	113.2
126	100	421	47	113.2
127	100	421	47	113.2
128	100	421	47	113.2
129	100	421	47	113.2
130	100	421	47	113.2
131	100	421	47	113.2
132	100	421	47	113.2
133	100	420	47	113.2
134	100	420	47	113.2
135	100	420	47	113.2
136	100	420	47	113.1
137	100	419	47	113.1
138	100	418	47	113
139	100	417	47	112.9
140	100	417	47	112.8
141	100	416	47	112.8
142	100	415	47	112.7
143	100	414	47	112.6
144	100	413	47	112.6
145	100	413	47	112.5
146	100	412	47	112.4

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2	Service TV	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
147	100	411	47	112.4
148	100	410	47	112.3
149	100	410	47	112.2
150	100	409	47	112.2
151	100	408	47	112.1
152	100	407	47	112
153	100	406	47	111.9
154	100	406	47	111.9
155	100	405	47	111.8
156	100	404	47	111.7
157	100	403	47	111.7
158	100	403	47	111.6
159	100	402	47	111.5
160	100	401	47	111.5
161	100	400	47	111.4
162	100	399	47	111.3
163	100	399	47	111.3
164	100	398	47	111.2
165	100	397	47	111.1
166	100	396	47	111.1
167	100	396	47	111
168	100	395	47	110.9
169	100	394	47	110.9
170	100	393	47	110.8
171	100	392	47	110.7
172	100	392	47	110.6
173	100	391	47	110.6
174	100	390	47	110.5
175	100	389	47	110.4
176	100	389	47	110.4
177	100	388	47	110.3
178	100	387	47	110.2
179	100	386	47	110.2
180	100	385	47	110.1
181	100	385	47	110.1
182	100	385	47	110.1
183	100	385	47	110.1
184	100	385	47	110.1
185	100	385	47	110.1
186	100	385	47	110.1
187	100	385	47	110.1
188	100	385	47	110.1
189	100	385	47	110.1
190	100	385	47	110.1
191	100	385	47	110.1
192	100	385	47	110.1
193	100	385	47	110.1
194	100	385	47	110.1
195	100	385	47	110.1

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2	Service TV	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
196	100	385	47	110.1
197	100	385	47	110.1
198	100	385	47	110.1
199	100	385	47	110.1
200	100	385	47	110.1
201	100	385	47	110.1
202	100	385	47	110.1
203	100	385	47	110.1
204	100	385	47	110.1
205	100	385	47	110.1
206	100	385	47	110.1
207	100	385	47	110.1
208	100	385	47	110.1
209	100	385	47	110.1
210	100	385	47	110.1
211	100	385	47	110.1
212	100	385	47	110.1
213	100	385	47	110
214	100	385	47	110
215	100	385	47	110
216	100	385	47	110
217	100	385	47	110
218	100	385	47	110
219	100	385	47	110
220	100	385	47	110
221	100	385	47	110
222	100	385	47	110
223	100	385	47	110
224	100	385	47	110
225	100	385	47	110
226	100	384	47	110
227	100	383	47	109.9
228	100	382	47	109.8
229	100	382	47	109.8
230	100	381	47	109.7
231	100	380	47	109.7
232	100	380	47	109.6
233	100	379	47	109.5
234	100	378	47	109.5
235	100	377	47	109.4
236	100	377	47	109.4
237	100	376	47	109.3
238	100	375	47	109.2
239	100	375	47	109.2
240	100	374	47	109.1
241	100	373	47	109.1
242	100	373	47	109
243	100	372	47	109
244	100	371	47	108.9

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2	Service TV	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
245	100	370	47	108.8
246	100	370	47	108.8
247	100	369	47	108.7
248	100	368	47	108.7
249	100	368	47	108.6
250	100	367	47	108.6
251	100	366	47	108.5
252	100	365	47	108.4
253	100	365	47	108.4
254	100	364	47	108.3
255	100	363	47	108.3
256	100	363	47	108.2
257	100	362	47	108.2
258	100	361	47	108.1
259	100	361	47	108.1
260	100	360	47	108
261	100	359	47	108
262	100	358	47	107.9
263	100	358	47	107.9
264	100	357	47	107.8
265	100	356	47	107.7
266	100	356	47	107.7
267	100	355	47	107.6
268	100	354	47	107.6
269	100	353	47	107.5
270	100	353	47	107.5
271	100	354	47	107.6
272	100	356	47	107.7
273	100	358	47	107.9
274	100	360	47	108
275	100	361	47	108.1
276	100	363	47	108.3
277	100	365	47	108.4
278	100	367	47	108.5
279	100	368	47	108.7
280	100	370	47	108.8
281	100	372	47	108.9
282	100	373	47	109.1
283	100	375	47	109.2
284	100	377	47	109.4
285	100	379	47	109.5
286	100	380	47	109.7
287	100	382	47	109.8
288	100	384	47	110
289	100	385	47	110.1
290	100	387	47	110.3
291	100	389	47	110.4
292	100	391	47	110.6
293	100	392	47	110.7

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2	Service TV	HAAT Radials 8		
AZ	ERP	HAAT	Field	Distance
294	100	394	47	110.9
295	100	396	47	111
296	100	398	47	111.2
297	100	399	47	111.3
298	100	401	47	111.5
299	100	403	47	111.6
300	100	404	47	111.8
301	100	406	47	111.9
302	100	408	47	112.1
303	100	410	47	112.2
304	100	411	47	112.4
305	100	413	47	112.5
306	100	415	47	112.7
307	100	416	47	112.8
308	100	418	47	113
309	100	420	47	113.1
310	100	422	47	113.3
311	100	423	47	113.5
312	100	425	47	113.6
313	100	427	47	113.8
314	100	429	47	113.9
315	100	430	47	114.1
316	100	431	47	114.1
317	100	431	47	114.2
318	100	432	47	114.2
319	100	432	47	114.3
320	100	433	47	114.3
321	100	434	47	114.4
322	100	434	47	114.4
323	100	435	47	114.5
324	100	435	47	114.5
325	100	436	47	114.6
326	100	436	47	114.6
327	100	437	47	114.7
328	100	437	47	114.7
329	100	438	47	114.8
330	100	438	47	114.8
331	100	439	47	114.9
332	100	440	47	114.9
333	100	440	47	115
334	100	441	47	115
335	100	441	47	115.1
336	100	442	47	115.1
337	100	442	47	115.2
338	100	443	47	115.2
339	100	443	47	115.3
340	100	444	47	115.3
341	100	445	47	115.4
342	100	445	47	115.4

TABLE IV

COHEN, DIPPELL AND EVERIST, P.C.

Channel 2	Service TV		HAAT Radials 8		
	AZ	ERP	HAAT	Field	Distance
	343	100	446	47	115.5
	344	100	446	47	115.5
	345	100	447	47	115.6
	346	100	447	47	115.6
	347	100	448	47	115.7
	348	100	448	47	115.7
	349	100	449	47	115.8
	350	100	449	47	115.8
	351	100	450	47	115.9
	352	100	451	47	115.9
	353	100	451	47	116
	354	100	452	47	116
	355	100	452	47	116.1
	356	100	453	47	116.1
	357	100	453	47	116.2
	358	100	454	47	116.2
	359	100	454	47	116.3

TABLE V

COHEN, DIPPELL AND EVERIST, P.C.

KCWX		KCWX - 8 HAAT Radials		KCWX - 360 HAAT Radials		KCWX - 7th FNPRM	
Channel	2	Channel	5	Channel	5	Channel	5
Service	TV	Service	DT	Service	DT	Service	DT
ERP	100	ERP	10.239	ERP	10.397	ERP	10.239
Pattern		Pattern		Pattern		Pattern	
Azimuth	Field Value	Azimuth	Field Value	Azimuth	Field Value	Azimuth	Field Value
0	1	0	1	0	0.992	0	1
10	1	10	0.997	10	1	10	0.997
20	1	20	0.994	20	0.993	20	0.994
30	1	30	0.991	30	0.986	30	0.991
40	1	40	0.988	40	0.984	40	0.988
50	1	50	0.986	50	0.974	50	0.986
60	1	60	0.985	60	0.956	60	0.985
70	1	70	0.983	70	0.922	70	0.983
80	1	80	0.982	80	0.945	80	0.982
90	1	90	0.98	90	0.973	90	0.98
100	1	100	0.98	100	0.982	100	0.98
110	1	110	0.98	110	0.989	110	0.98
120	1	120	0.98	120	0.98	120	0.98
130	1	130	0.98	130	0.969	130	0.98
140	1	140	0.978	140	0.964	140	0.978
150	1	150	0.972	150	0.948	150	0.972
160	1	160	0.965	160	0.951	160	0.965
170	1	170	0.959	170	0.957	170	0.959
180	1	180	0.951	180	0.944	180	0.951
190	1	190	0.951	190	0.945	190	0.951
200	1	200	0.951	200	0.945	200	0.951
210	1	210	0.951	210	0.956	210	0.951
220	1	220	0.951	220	0.953	220	0.951
230	1	230	0.947	230	0.94	230	0.947
240	1	240	0.938	240	0.943	240	0.938
250	1	250	0.927	250	0.903	250	0.927
260	1	260	0.913	260	0.859	260	0.913
270	1	270	0.899	270	0.892	270	0.899
280	1	280	0.932	280	0.937	280	0.932
290	1	290	0.953	290	0.948	290	0.953
300	1	300	0.968	300	0.963	300	0.968
310	1	310	0.981	310	0.976	310	0.981
320	1	320	0.988	320	0.981	320	0.988
330	1	330	0.991	330	0.982	330	0.991
340	1	340	0.994	340	0.987	340	0.994
350	1	350	0.997	350	0.989	350	0.997

## COHEN, DIPPELL AND EVERIST, P.C.

The FCC replication program, named "create\_rep\_db", uses an input file to load many of the parameters used for calculations. The subroutine "main\_load" calls another subroutine "read\_input," which, when given a proper input file, will call the subroutine "read\_xmit\_params." One of the variables parsed from the input is **n\_std\_rad**. This variable is read in with the following code (lines 248-261 of FCC provided code).

```
c
c Get # of radials used when computing HAAT - this line is
c ignored if the source file is TVDB but it must be present
c
c If a(1:1) not = ( then error in file
c
      if (a(1:1) .ne. '(') goto 400
      write(iresult, '(a)') a(1:1)
      call find_len_btw_ch(a, '(', ')', n_l, n_r, n_t)
      b = a(n_r+3:1)
      read(b, 815) n_std_rad
      if (c(1:1_c) .eq. 'TVDB') n_std_rad = 1
      use_n_radial_haat = .false.
      if (n_std_rad .gt. 1) use_n_radial_haat = .true.
```

In the FCC provided input.rep file, the value of **n\_std\_rad** is given by the following line(51);

```
(Number of radials used to determine HAAT)      8 #Only used with HTDB
(MAX 360)
```

The variable **n\_std\_rad** is later used in the subroutine "get\_haat".

```
      az_std = 360.0 / float(n_std_rad)
      iaz_1 = int(az / az_std) + 1
      iaz_2 = iaz_1 + 1
      if (iaz_2 .gt. n_std_rad) iaz_2 = 1
      az_1 = (iaz_1 - 1) * az_std
      az_2 = (iaz_2 - 1) * az_std

[comment lines removed]

      call get_rad_haat(az_1, amslrc, dlat1, dlon1, avg_elev,
&      rad_haat_1)
      call get_rad_haat(az_2, amslrc, dlat1, dlon1, avg_elev,
&      rad_haat_2)
      if (rad_haat_1 .eq. -10000 .or. rad_haat_2 .eq. -10000) then
        rad_haat = -10000
        goto 500
      end if

[comment lines removed]

      rad_dif = rad_haat_2 - rad_haat_1
      az_inc = (az - az_1) / az_std
      rad_haat = rad_haat_1 + (az_inc * rad_dif)
```

As can be seen in the code above, if the value 8 is use for **n\_std\_rad**, the program will use the terrain to calculate the **rad\_haat** for azimuths at 45 degree increments, starting with zero(i.e. 0, 45, 90, 135, etc.). The **rad\_haat** for azimuths between the terrain-calculated **rad\_haats** will be linearly interpolated from the terrain-calculated **rad\_haats**.

Cohen, Dippell and Everist, P.C.

**APPENDIX B**

PRESENTATION TO THE AFCCE

MARCH 16, 2005

Entitled,

**DTV-DTV INTERFERENCE CONSIDERATIONS**

By Charles W. Rhodes